

## Abstract

An MRI apparatus suitable for realizing selective excitation utilizing multiple RF transmitting coils (parallel transmission) is provided. This MRI apparatus is provided with, as an RF receiving coil or RF transmitting coil, an RF transmitting coil 104 comprising a loop coil 210, primary differential coil 220 and secondary differential coil 230 having a common central axis 201. Upon imaging, the coils 210, 220 and 230 constituting the RF transmitting coil 104 are simultaneously driven by RF signals with the same phase, and only the differential coils 220 and 230 are driven in the second half of irradiation time with phases different by  $180^\circ$  from the phases for the first half. Alternatively, two times of measurements are performed as a pair, in which, in the first measurement, the coils 210, 220 and 230 are simultaneously driven with RF signals of the same phase, then in the second measurement, only the differential coils 220 and 230 are driven with phases inverse to the phases for the first measurement, and the signals measured respectively are added. Such imaging or addition of the results of two times of the measurement provides a profile for exciting a local region. This enables selective excitation of only a desired region without using any RF pulse for signal suppression.